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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/594,966	09/29/2006	Nikolai Mykola Ignatyev	MERCK-3234	5659

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EXAMINER

LOEWE, SUN JAE Y

ART UNIT	PAPER NUMBER
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1626

MAIL DATE	DELIVERY MODE
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02/26/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/594,966	Applicant(s) IGNATYEV ET AL.	
	Examiner SUN JAE Y. LOEWE	Art Unit 1626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 4,5,9 and 12-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 6-8 is/are rejected.
- 7) ☒ Claim(s) 10 and 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>9-29-2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-18 are pending in the instant application.

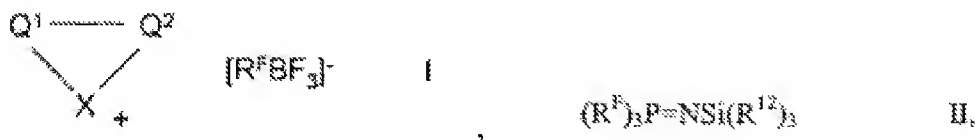
Election/Restrictions

2. Applicant's election with traverse of Group I, and species of "N-Methyl-N-butylpyrrolidinium pentafluoroethyltrifluoroborate" in the reply filed on January 14, 2008 is acknowledged.

The traversal is on the ground(s):

"the claims are all usable as ionic liquids, and all contain trifluoromethyltrifluoroborate anions and nitrogen containing cations differing only by relative unsubstitutions. Indeed, it is submitted this constitutes a significant structural feature which mandates withdrawing the restriction and a finding of unity of invention. The same is respectfully requested. "

It is maintained that the full scope of claims in the instant application is not linked by a special technical feature. For example, claim 1 is drawn to compounds of Formula I (below) wherein the common structural feature (ic. feature that is not variable) among all compounds is "BF₃". However, claim 14 is drawn to compounds of Formula II (below) wherein the common structural feature is P=NSi. Thus, there is no technical feature unifying the inventions of claims 1 and 14.



The restriction requirement is still deemed proper and is therefore made FINAL.

3. The following guidelines are provided by MPEP 1893.03(d):

" Note: the determination regarding unity of inven-

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tion is made without regard to whether a group of inventions is claimed in separate claims or as alternatives within a single claim. The basic criteria for unity of invention are the same, regardless of the manner in which applicant chooses to draft a claim or claims.

¶ If an examiner (1) determines that the claims lack unity of invention and (2) requires election of a single invention, when all of the claims drawn to the elected invention are allowable (i.e., meet the requirements of 35 U.S.C. 101, 102, 103 and 112), the nonelected invention(s) should be considered for rejoinder. Any nonelected product claim that requires all the limitations of an allowable product claim, and any non-

¶ *18.20 National Stage Election of Species in 35 U.S.C. 371 Applications*

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If "

The generic claims were not allowable (Section 10). Pursuant MPEP 1893.03(d), all non-elected species are presently withdrawn from further consideration.

4. Claims 4, 5, 9 and 12-18 withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected subject matter. Applicant timely traversed the restriction (election) requirement in the reply filed on January 14, 2008.

Priority

5. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

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6. The information disclosure statement (IDS) submitted on September 29, 2006 was in compliance with the provisions of 37 CFR 1.97 and 37 CFR 1.98. The IDS was considered. A signed copy of form 1449 is enclosed herewith.

Specification

7. The specification does not contain a section entitled "Brief Description of Drawings", as required by MPEP 608.01(f). Appropriate correction is requested.

Claim Objections

8. Claims 1-3, 6-8, 10 and 11 objected to for containing non-elected subject matter.

9. Claims 10 and 11 objected to for being dependent on a base rejected claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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10. Claims 1-3 and 6-8 rejected under 35 U.S.C. 103(a) as being obvious over Zhou et al. (Journal of Fluorine Chemistry, 2004, p. 471-476) in view of MacFarlane et al. (Chem. Commun., 2001, 1430-1431).

Determination of the scope and contents of prior art.

Zhou et al. teaches 1-ethyl-3-methylimidazolium pentafluoroethyltrifluoroborate as an ionic liquid.

MacFarlane et al. teach a family of ionic liquids based on organic salts of the dicyanamide anion. The organic cation is generically taught to be quaternary ammonium, N-alkyl-N-methylpyrrolidinium, or 1-alkyl-3-methylimidazolium. 1-ethyl-3-methylimidazolium dicyanamide and N-butyl-N-methylpyrrolidinium dicyanamide are preferred embodiments. The disclosed salts have similar thermal behavior such as melting point, viscosity, water miscibility, etc. (see Table 1) which render them ionic liquids with similar properties.

Ascertaining the differences between prior art and instant claims.

The difference between the disclosure of Zhou et al. and the instantly elected species is the nature of the cation: i.e. 1-ethyl-3-methylimidazolium (Zhou et al.) vs. N-butyl-N-methylpyrrolidinium (instant election).

Resolving the level of ordinary skill in the pertinent art – Prima Facie Case of Obviousness.

The disclosure of MacFarlane et al. establish a functional equivalence between 1-ethyl-3-methylimidazolium and N-butyl-N-methylpyrrolidinium as organic cations. Thus, the combined disclosure of Zhou et al. and MacFarlane et al suggests to one of ordinary skill to make N-butyl-N-methylpyrrolidinium pentafluoroethyltrifluoroborate. One of ordinary skill would be motivated to practice this instant election, with reasonable expectation of success, for the purpose of making an additional ionic liquid.

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Thus, the instant invention is *prima facie* obvious over the teaching of the prior art.

Conclusion

11. No claims allowed.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sun Jae Y. Loewe whose telephone number is (571) 272-9074. The examiner can normally be reached on M-F 7:30-5:00 Est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph McKane can be reached on (571)272-0699. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SL
2-18-2008

/Kamal Saeed, Ph.D./
Primary Examiner
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